

REMARKS/ARGUMENTS

Claims 1 and 6-10 are currently pending in this application. Claims 2-5 have been withdrawn. Claims 1 and 6-10 have been amended. No new claims have been added. The claims were reworded to substitute the routinely used “wherein” [and “including”] for the less common “characterized in that” [and “characterized by”]. These changes were made for purposes of clarification unrelated to patentability concerns.

The specification has been revised to conform it to the preferred format for U.S. patent applications as required in the Office Action, and a Substitute Specification and Comparison Copy are submitted herewith.

Reconsideration is respectfully requested in light of the foregoing amendments and following remarks.

Election/Restriction

Applicants confirm the previous election of Species IV (Figure 4, Claims 1 and 6-10).

Priority

Applicants respectfully submit that a proper claim for priority under 35 U.S.C. §119 (a) was made in the Application Data Sheet (ADS) as required by 37 CFR 1.78(a) filed with the original U.S. filing of the present application on October 16, 2003, claiming priority to the European patent application No. EP 02606014.7 which has a filing date of Nov. 22, 2002. A certified copy of the EP patent application was also filed along with the original U.S. filing of the present application on October 16, 2003. The Official Filing Receipt of the present patent application reflects the priority claim to EP 02606014.7. Applicants are prepared to resubmit the previously-filed documents should the Examiner deem it necessary.

Specification

As set forth above, the specification has been revised to conform it to the preferred format for U.S. patent applications as required by the Office Action. In addition, a Substitute Specification and Comparison Copy are also submitted herewith.

Claim Objections

Claim 6 has been objected to because of a certain informality. Claim 6 has been appropriately corrected.

Claim Rejections - 35 U.S.C. §112

Claims 6, 7, 9 and 10 were rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite as set forth in the Office Action. In order to further the prosecution of the presently pending claims, Applicants have amended claims 6, 7, 9 and 10 as set forth above. Applicants respectfully submit that the section 112, second paragraph rejections are overcome by the above amendments.

Claim Rejections - 35 U.S.C. §102

Claims 1, 6, and 9 were rejected under 35 U.S.C. 102 (b) as allegedly being anticipated by United States Patent No. 4,807,450 to Weiland ("Weiland"). In order to further the prosecution of the presently pending claims, Applicants have amended independent claim 1 without acquiescence or prejudice as set forth above. Applicants respectfully submit that amended independent claim 1 is not anticipated by Weiland for reasons set forth below. Applicants respectfully submit that the presently pending claims are directed towards a weaving machine and are thus distinguishable from the warp knitting machine of Weiland.

The thread carrying apparatus of Weiland operates differently from that of the presently pending claims, due to the fact that the thread carrying apparatus of Weiland is a part of a warp knitting machine. In a warp knitting machine, such as that disclosed in Weiland, the weft threads are cut to width and laid on a transport arrangement before proceeding to the working area. Not only is Weiland directed to a warp knitting machine, the problems associated

with the operation of a warp knitting machine are not comparable to the operation of a weaving machine as is presently claimed. The warp knitting machine according to Weiland operates in a manner where: the weft threads are laid into the transport arrangement such that the orientation of the weft threads is normal to the direction of the transport arrangement (7), as shown by arrow (8); the weft threads are transported to a support element, before they are interconnected with a warp thread supplied from guide bar (6) by slider needles in the working area (2); the forward motion of the weft threads is provided by the vibratory motion of the sloped support element (13) in addition to the forward movement of the transport arrangement. The vibratory movement thus enables the positioning of the weft threads in a "substantially linear orientation." The positioning is necessary for the forwarding means (16), a gripper-like member, to grip the thread and bring it to the needle bed (2) (e.g. see column 3, lines 29-42).

In stark contrast, the presently claimed invention is directed towards the forward motion of the warp thread. The warp thread according to the presently pending claims is unrolled from the thread carrying apparatus, whereby it is continually charged with a tensile loading which is to be reduced, in order to avoid certain problems such as those of EP 1 126 063 (cited in the application), namely the damage to the thread or even the breaking of the thread. Applicants respectfully submit that Weiland does not disclose or suggest anything related to the problem of tensile stress (or tensile loading) in the thread.

In addition, the pneumatic transport required for shooting the warp thread through a shed in a weaving machine according to the present invention induces much higher tensile stresses in the warp thread due to the need of a thread of considerable length and due to the speed of shooting the thread through the shed. Therefore, a thread carrying apparatus is needed for the warp thread; a feature which is not needed in Weiland's warp knitting machine and is therefore not disclosed or suggested. Concerning the weft threads of the warp knitting machine of Weiland, the problem of high tensile stress on the thread is not present, as the weft threads (10) are laid parallel to each other in the spaces of transport arrangement (7) (e.g., see column 2, line 56) and are cut to width so as to fit on the transport arrangement. Therefore the frequency range of Weiland's vibratory element is only about 50 to 100 Hz instead of the frequency of at least 18

kHz of the instant application. This frequency is sufficient for a weft thread to overcome friction for positioning it in such a way that the forwarding means can grip the individual thread. However the frequency of Weiland would not be sufficient to overcome frictional forces for a thread under strong tensile loading. For the reasons set forth above, Applicants respectfully submit that amended claim 1 is not anticipated by Weiland.

The dependent claims each depend from amended independent Claim 1 and therefore include all the features and elements thereof. Furthermore, the dependent claims add further distinguishing features of particular utility. In addition to the reasons set forth above with respect to claim 1, claims 6 and 9 are dependent from amended independent claim 1 and have incorporated all the elements of amended claim 1. Therefore, claims 6 and 9 are also patentable at least to the same extent as the amended independent claim 1 is patentable.

Claim Rejections - 35 U.S.C. §103

Dependent claims 7 and 10 have been rejected under 35 U.S.C. 103(a) as allegedly being obvious over Weiland as applied to claim 1 and further in view of United States Patent No. 4,744,394 to Lincke ("Lincke"). First, Applicants respectfully submit that the deficiencies of Weiland are not overcome by the Lincke reference. In addition, Applicants respectfully submit that a hypothetical combination of Weiland and Lincke as suggested by the Office Action would not render obvious dependent claims 7 and 10, for reasons set forth below. Applicants respectfully submit that a combination of Weiland and Lincke would not suggest every element of amended independent claim 1. In particular, the drum (11) of Lincke is used for storage of a weft yarn. The drum has pins for keeping the weft yarn in contact with the drum. The weft yarn is to be located accurately on the drum with the cooperation of pin (142 (column 2, line 52, 53)). Hence, the provision of a means for keeping the yarn at a distance from the drum is excluded by this arrangement as it would be contradictory to the function of the pins. Therefore even integrating the drum of Lincke into the guide bar (6) of Weiland would not teach or suggest the elements of amended claim 1. Moreover, since claims 7 and 10 are dependent from amended independent claim 1 and have incorporated all the elements of amended claim 1, claims 7 and 10 are also patentable at least to the same extent as the amended independent claim

1 is patentable. In addition, the magnetic inserts used in the drum of Lincke are merely used for driving the drum; there is no incentive to modify these magnets to provide a resonator body, because even if the surface of the drum is set into vibratory movement, the thread would remain fixed to the surface of the drum by the pins mentioned above.

Dependent claim 8 has been rejected under 35 U.S.C. 103(a) as allegedly being obvious over Weiland as applied to claim 1 and further in view of United States Patent No. 5,947,162 to Steiner et al. ("Steiner"). For reasons set forth above, Applicants respectfully submit that amended claim 1 is not rendered obvious by the primary reference ("Weiland"). Furthermore, the deficiencies of Weiland are not overcome by the Steiner reference. As set forth above, Weiland does not disclose or suggest a teaching relating to the warp thread carrying apparatus or relating to the problem of tensile stress (or tensile loading) in the thread. In Weiland, since the length of a warp thread used for each knitting step is much smaller than the length of a warp thread for traversing the whole cloth arranged even when combined with a rotor similar to the rotor disclosed by Steiner, when considering the necessary speed the warp thread has to reach, the tensile stress on the warp thread of Weiland and Steiner is considerably lower and would still not render claim 8 obvious as the hypothetical combination would not be sufficient in addressing the high speed friction issues of the presently claimed invention. For reasons set forth above, Applicants respectfully submit that dependent claim 8 is not obvious over the hypothetical combination of Weiland and Steiner.

References not relied upon yet considered pertinent

In relation to the references not relied upon yet considered pertinent to the Applicants' disclosure, Applicants respectfully submit that none of the references discloses the combination of reduction of friction to reduce tensile stress of a thread. Kleesattel is directed towards a device for applying a coating on a paper or other sheet material. The supply of coating has a vibratory edge, which vibrates for application of a uniform layer of coating. This is entirely non-analogous with the present disclosure. The Kojima and Saito references are all directed towards the transport of tapes in a video tape recorder, an operation that is not at all comparable to the operation of weaving machine, and thus also entirely non-analogous with the

present disclosure. Accordingly, the vibratory guiding devices of these tape recorder patents are not considered suitable as a solution of the current problem, especially when recognizing that the speed of the tape is much slower and consequently the tensile stress is not comparable with the tensile stress a yarn is subjected to in a weaving machine.

CONCLUSION

In view of the foregoing, Applicants submit that this application is in condition for allowance, and a formal notification to that effect at an early date is requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (415) 273-7512 (direct dial).

Respectfully submitted,



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